In the Claims

Cancel claims 5 to 16 without prejudice.

Amend claims 1, 2, 20, 21 and 24 to read as follows:

1. (Once Amended) A method for operating an optical crossbar switch having a plurality of selectable reflective optical switching elements, said method comprising

focusing a selected input light beam on a first selected reflective optical switching element, the first selected reflective optical element directing the selected input light beam to a first output;

selecting a second reflective optical switching element; and,

focusing said selected input light beam on said second selected reflective optical switching element, the second selected reflective optical element directing the selected input light beam to a second output.

2. (Once Amended) A method as in claim 1, wherein said focusing comprises varying a focal length of an adaptive optical element.

20. (Once Amended) A method as in any one of claims 4 and ~~19~~ wherein said variable lens comprises a variable micro-machined membrane lens.

21. (Once Amended) An optical crossbar switch for switching input light beams, the switch comprising:

at least one adaptive optical element having a focal length variable over a range, the adaptive optical element located in a path of a selected input light beam; and,

a plurality of selectable reflective optical elements, said selectable reflective optical elements alternatively selectable and interposable in the path of

the selected input light beam to direct the selected input light beam to a corresponding one of a plurality of outputs;

wherein more than one of said selectable reflective optical elements are located within the range over which said adaptive optical element is capable of focusing said selected input light beam.

24. (Once Amended) An optical crossbar switch as in claim 23 wherein said variable lens comprises a variable micro-machined membrane lens.

Add new claims 25 through 49 as follows:

25. (New) An apparatus for directing an optical signal from an input channel to a selected one of a plurality of output channels, the apparatus comprising:

a plurality of individually switchable reflective elements located to intercept an optical signal from the input channel, the plurality of reflective elements having a plurality of selectable configurations, each of the configurations directing the optical signal to a corresponding one of the output channels, in each of the configurations the optical signal incident on a selected one of the reflective elements; and,

at least one adjustable focus optical element in an optical path between the input channel and the plurality of reflective elements, the adjustable focus optical element configured to focus the optical signal onto a currently selected one of the reflective elements.

26. (New) An apparatus according to claim 25, wherein each of the plurality of reflective elements corresponds to one of the plurality of output channels and in each of the configurations the selected one of the reflective elements is the reflective element corresponding to the corresponding output channel.

27. (New) An apparatus according to claim 26 wherein each of the plurality of individually switchable reflective elements is moveable between a reflective state and a non-reflective state.

28. (New) An apparatus according to claim 27, wherein each of the plurality of individually switchable reflective elements comprises a member movable between a substantially flat orientation and a substantially upright orientation and when the reflective element is in its reflecting state, the element is in its substantially upright orientation.

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29. (New) An apparatus according to claim 25, wherein each of the plurality of individually switchable reflective elements comprises a micro-machined mirror.

30. (New) An apparatus according to claim 25, wherein the adjustable focus optical element comprises one of: an adjustable focus reflective element and an adjustable focus transmissive element.

31. (New) An apparatus according to any one of claims 25, 26 and 28 comprising a plurality of adjustable focus second optical elements each located in an optical path between the plurality of reflective elements and a corresponding one of the output channels.

32. (New) An apparatus according to claim 31 comprising a plurality of collimating lenses, each of the collimating lenses disposed in an optical path between one of the plurality of second optical elements and a corresponding output channel.

33. (New) An apparatus according to any one of claims 25, 26 and 28 comprising a collimating lens disposed between the

input channel and the at least one adjustable focus optical element.

34. (New) An apparatus according to claim 25 wherein the input channel comprises an optical fiber.

35. (New) An apparatus according to claim 25 wherein the plurality of individually switchable reflective elements comprises a linear array of micro-machined mirrors.

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36. (New) An apparatus according to claim 35 comprising a plurality of input channels wherein the plurality of individually switchable reflective elements comprises a plurality of linear arrays of micro-machined mirrors, the plurality of linear arrays including a mirror corresponding to each possible combination of one of the input channels and one of the output channels.

37. (New) An apparatus according to claim 25, wherein the adjustable focus optical element comprises a liquid crystal lens.

38. (New) A switch for switching optical signals comprising:

a plurality of optical input channels and a plurality of optical output channels;

a plurality of individually switchable reflective elements, each of which is switchable between a reflecting state and a non-reflecting state; and

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a plurality of adjustable focus optical elements, each of the adjustable focus optical elements in an optical path between a corresponding one of the input optical channels and the plurality of individually switchable reflective elements, each of the adjustable focus optical elements capable of selectively focusing an optical signal from the corresponding one of the input channels onto any one of a plurality of the plurality of individually switchable reflective elements;

wherein an optical signal may be directed from a selected one of the input optical channels to a selected one of the output optical channels by switching a selected one of the plurality of reflective elements to its reflecting state and adjusting a focus of the at least one adjustable focus optical element corresponding to the selected input optical channel to focus the optical signal onto the selected reflective element.

39. (New) A method for directing an optical signal from an input channel to a selected one of a plurality of output channels, the method comprising:

actuating a reflective element to direct an optical signal from the input channel to a selected one of the output channels; and,

operating an adjustable focus optical element to focus the optical signal from the input channel onto the reflective element.

40. (New) A method according to claim 39, wherein actuating the reflective element comprises moving the reflective element between a position wherein the reflective element is in a non-reflecting state to a position wherein the reflective elements is in a reflecting state.

41. (New) A method according to claim 40, wherein actuating the reflective element comprises flipping the reflective element from a substantially flat orientation to a substantially upright orientation.

42. (New) A method according to claim 39, wherein the reflective element comprises a micro-machined mirror.

43. (New) A method according to any one of claims 39 and 40 comprising providing a second adjustable focus optical element in an optical path between the reflective element and the selected one of the output channels and adjusting

a focal length of the second adjustable focus optical element to couple the optical signal to the selected one of the output channels.

44. (New) The method of claim 39 comprising switching the optical signal from the selected one of the output channels to a different one of the output channels by:

deactivating the reflective element and activating a different reflective element; and,

adjusting the adjustable focus optical element to focus the optical signal onto the different reflective element.

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45. (New) A method according to claim 44, wherein activating the different reflective element comprises switching the different reflective element from a non-reflecting state to a reflecting state.

46. (New) A method for directing an optical signal from a selected one of a plurality of input channels to a selected one of a plurality of output channels comprising:

actuating a reflective element corresponding to the selected input and output channels; and,

focusing an optical signal from the selected input channel onto the actuated reflective element.

47. (New) The method of claim 46 wherein focusing an optical signal from the selected input channel onto the reflective element comprises adjusting a variable focus optical element disposed in an optical path between the selected input channel and the reflective element.

48. (New) The method of claim 46 comprising adjusting a second variable focus optical element disposed in an optical path between the reflective element and the

selected output channel to couple the optical signal to the selected output channel.

49. (New) A method for redirecting a radiation beam in an optical crossbar switch comprising a plurality of individually selectable reflective optical switching elements, the method comprising:

focusing a selected radiation beam on a first selected reflective optical switching element;

selecting a second reflective optical switching element; and,

focusing the selected radiation beam on the second reflective optical switching element.